

Salivary Proteome During Simulated Mars Analog Missions: Aeronautical (Space) Dentistry

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Saliva based technologies are the future of devices for health monitoring of human beings in space and earth: Balwant Rai A few months ago, India launched its very first spacecraft on an unmanned mission to Mars. Other space agencies including NASA, ESA, and others will probably turn their focus to manned missions to Mars. During such extended space travel, the body is prone to a number of adverse effects, including modifications in the oral cavity. Various studies have been carried out on the effects of simulated microgravity and Mission analog missions on the oral cavity, but this issue needs to be extended to explore and make specific guidelines for oral dental management during space missions.

In this study, salivary samples were collected using Versi•SAL[®] (Oasis, Vancouver, USA) and the salivary proteome was analyzed during a Mars analog mission. Results confirmed that amylase, parotid secretory protein and proline rich protein were decreased while parotid protein, IL-6 and IL-8 were increased during the mission compared to levels of the same protein markers before the mission. It is clear that salivary proteome levels changed during this mission, which is something that could also be evaluated during actual space missions. This study was performed to obtain data that can be used to develop future non-invasive health monitoring technologies for Marsonauts and astronauts with applicability in general clinical applications on Earth too.

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